

### **REMARKS**

It is requested that non-elected claims 14-25 be retained in the case pending a determination of their ultimate disposition.

The specification is being amended to correct certain small errors therein. No new matter is involved.

Claim 8 was objected to for lack of an antecedent basis for "the secondary configuration". Claim 8, which has been indicated as being allowable if rewritten, has been cancelled and rewritten as new claim 26, wherein an antecedent for "the secondary configuration" has been added. Claim 26 is believed, therefore, to be allowable, as indicated by the Examiner, inasmuch as it replaces allowable dependent claim 8 and includes all the limitations of the base claim and the intervening claims. Claims 9 through 13 have been made dependent on the new claim 26 either directly or indirectly and are, therefore, believed to be allowable, as indicated by the Examiner.

Claims 2 and 6 were rejected under 35 U.S.C. 112 as being indefinite. These claims are being amended to correct the indefiniteness.

Claim 1 and 4 were rejected under 35 U.S.C. 102(b) as being anticipated by JP 58216217A (Japan) of Nishimira *et al.* Accordingly, claim 1 is being amended to overcome this rejection by clearly distinguishing from this reference, and is believed to be allowable for the following reasons.

The clamping member of Japan '217 comprises three rods of SMA material which are contained within the bore of the ferrule. The fiber is then inserted within the central space defined by the three rods which are then heated to undergo radial expansion to their primary configuration, thus gripping the fiber at three points to maintain it in position and to maintain the rods within the ferrule bore. This arrangement has several drawbacks.

In the first place, the three rods must be substantially identical as to their radius and as to the degree of expansion from the secondary to the primary configuration. If either of these conditions is not met, the fiber may be gripped at three points, but it will not be centered, which is virtually a must condition for an ideal connection.

Secondly, the small dimensions of the rods, and the fact that they are loose within the ferrule bore in their secondary configuration make the insertion of the fiber in the proper space and alignment a daunting task, especially for the installer in the field.

On the other hand, applicant's invention comprises one, or at the most, two, SMA members for gripping the fiber, thus obviating to necessity of identical primary-secondary-primary configurations for each member.

In applicant's sleeve embodiment as shown in Figs. 5 through 9, there is only one fiber gripping member of SMA within the ferrule bore wherein it is a tight fit, such as by being cemented therein. The sleeve bore has a primary configuration diameter very slightly less than the fiber diameter, and a secondary configuration diameter slightly greater than the fiber diameter. The fiber need only be threaded into the ferrule bore, such as by the arrangement of Fig. 9, and its centering is substantially guaranteed by the sleeve returning to its primary configuration.

Claim 1 has been amended to call for the clamping member to substantially surround and be in gripping contact with at least a portion of the fiber. This is not shown or suggested by Japan '217 the apparatus of which does not grip the fiber, and such an arrangement overcomes the drawbacks of the reference, as pointed out hereinbefore. As a consequence, amended claim 1 is believed to be clearly allowable over the disclosure of Japan '217, as is claim 4, dependent on claim 1.

Claims 2 and 3 were rejected under 35 U.S.C. 102(a) as being unpatentable over Japan '217 in view of Hirohisa *et al* (NPL-97), relied upon for its disclosure of Ni-Ti shape memory alloys. Inasmuch as these claims are dependent on amended claim 1, they are believed now to be allowable, claims 2 and 3 are likewise believed to be allowable.

Claims 5 through 7 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Japan '217 in view of U.S. Patent 6,317,556 of Maron, *et al*. Of these claims, claim 7 has been cancelled. Claim 5 and 6 are dependent on claim 1, directly or indirectly, hence these claims are believed to be allowable for the same reasons as claim 1. In addition, these claims are believed to be allowable because the cited combination does not disclose nor suggest a sleeve of shaped memory material within the ferrule bore surrounding the fiber and having an axial bore diameter in the primary configuration less than the diameter of the fiber (claim 5) and, in the secondary configuration, greater than the diameter of the fiber (claim 6).

The Maron *et al* patent discloses a connector in the several embodiments of which the fiber is cemented within the ferrule bore. See, for example, Figs. 1, 3, 4, 7 and 8 and related text. The fiber itself has, in the several embodiments, a bulbous or stepped portion to limit or prevent

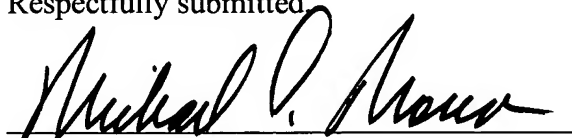
translational movement. For a multi-piece ferrule as disclosed in Fig. 2, a collar of shape memory alloy is used to hold the ferrule parts in place. See, for example, column 6, lines 7 through 37 of the patent. The collar does not contact the fiber, and certainly does not grip it as is claimed in claims 1, 5, and 6.

It is the Examiner's contention that it would be obvious to use the sleeve (collar) of Maron *et al.* In place of the three rods of Japan '217. There is no suggestion or apparent motivation to make this change. Japan '217 was published in 1983 and is thus prior art to Maron *et al.* If the Examiner's contention were correct, Maron, *et al.* could have avoided the bulbous or stepped shape of the fiber (a production nightmare) and the use of cement, the elimination of which is one of the principal features (or results) of applicant's claimed arrangement. Thus if the Examiner's contention of obviousness is correct, it is reasonable to assume that Maron *et al.* would have supported, affixed, or aligned their fiber within the ferrule, but they didn't.

It is believed, therefore, that claims 5 and 6 are clearly allowable.

In view of the foregoing, it is respectfully submitted that all of the claims in the case are clearly allowable over the cited art and favorable action in that regard is earnestly solicited.

Respectfully submitted



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